

Evaluation of the Technology Enhanced Learning Programme

July 2015

Executive Summary

Background

In March 2014 the ESRC Evaluation, Strategy and Analysis team began an evaluation of the Technology Enhanced Learning (TEL) Programme. This evaluation presents an objective, fair and balanced review of the academic and scientific quality and achievements, the impact of the research, and the effectiveness of the Programme as a means of organising and enhancing the work.

The Programme, co-funded by ESRC and EPSRC, had eight large projects across the UK running between 2007 and 2012 in a variety of learning settings, and looked at ways in which technology could be used to improve learner outcomes. The Programme was funded to a total of £12.3 million, which included the eight projects' funding, and the central Programme work. The Director of the Programme was Professor Richard Noss at the London Knowledge Lab, Institute of Education (IoE). The Principal Investigators of the funded projects were based at the IoE, Liverpool John Moores University, Kings College London, University of Glasgow, University of Nottingham and Durham University. The 150 project researchers were based in 34 institutions across the UK.

The overall aim of the TEL Programme was to support innovative interdisciplinary research collaborations focusing on the creation, development and exploitation of digital technologies for learning through a better understanding of their capability to transform the quality of learning experiences and lead to enhancements in learning outcomes. The more specific aims of the Programme were to:

- build a cumulative body of TEL research
- enhance research capacity in the field of Technology Enhanced Learning
- develop a field of research that is generalisable beyond the specificities of ages, context, and technology
- create an elaborated research effort that combines 21st century pedagogy with 21st century technology
- develop an interdisciplinary focus on developing a technologically-enhanced ecology of learning, which embraces cognitive, sociocultural and technological issues
- create a collection of domain-specific evidence and research-based recommendations, in order to inform practice, explore the application of design principles, and contribute to the challenge of TEL from an epistemological perspective
- support technology-enhanced intelligent systems, tools and services that take context into account, and which allow dynamic adaptation to learners and teachers based on substantial advances in pedagogical theories and knowledge models.

The Programme had five research themes and ten thematic strands within these.

Design, implementation and contribution to academic field

The evidence indicates that the design and implementation of the Programme and its projects were appropriate, and no changes were made to the Programme other than adding research capacity as a theme in the second year. Evaluation fieldwork participants viewed the management of the Programme and the projects as effective, and ESRC monitoring processes were generally viewed positively. Evaluation evidence suggests that the Programme model added value:

- generating integrated outputs between pedagogical and technological concerns through interdisciplinary working and inter-project collaborations which might not have occurred otherwise between un-coordinated individual projects
- introducing cross-project themes; and enabling the projects to impact on policymakers.

In addition, the Director and Advisory Committee Chair both agreed that the ESRC's research programme funding mechanism had worked well for TEL and had enabled inter-project collaborations.¹

The Programme has produced high quality outputs but at a lower volume than might be expected, according to the academic evaluator. In addition, the different focus and nature of projects may have led to a collection of related outcomes rather than a cumulative body of research through a single framework.

Aspects of the research field have been successfully taken forward by the Programme. Although the Director made efforts to readdress any imbalances at the commissioning stage and during the course of the programme, evidence indicates that the extent of contributions have been more in the education and pedagogy fields than the computer science and technology fields. One reason for this is that the iterative approaches taken by some of the projects, which were designed to strongly involve stakeholders in the continual developmental process, supported a focus from pedagogy learning rather than being driven by technology and its applications. The evaluation indicates there was some feeling that the social science component of the Programme was being favoured over computer science. This may to some extent be as a result of misreading the relationship between ESRC and EPSRC, where ESRC was acting as lead council on behalf of the joint funders.

The Programme had a strong interdisciplinarity focus through its interdisciplinarity research strand and within each project, as well as including it as a key component in the regular termly workshops. This has not only been particularly beneficial to researchers who have little or no experience of working in interdisciplinary teams but has also built capacity among the next generation of technology enhanced learning researchers. The workshops also had the effect of encouraging and providing a forum for inter-project collaboration.

Engagement and non-academic impact

TEL's performance on engagement was strong and appropriately targeted according to the evidence reviewed. The range of activities and the audiences reached through these show that the Programme and projects were indeed successful at engaging with non-academic audiences, particularly policymakers and teachers. The Programme met all of these aims outlined in its Communications plan, and engagement and communications continued to be

¹ It is worth noting that following extensive assessment, the ESRC has generally moved away from supporting research using the 'programme' format.

a priority throughout the life of the Programme, with all completing projects required to plan impact events and/or outputs with the aim of disseminating their findings to non-academic audiences. The Programme identified and addressed different audiences using different engagement tools - most notably a journalist was commissioned to write accessible materials and human interest stories around the eight projects. The Programme also had several high-profile dissemination activities in the second half of 2012. There was some indication that success in this area varied between projects, and also that sustaining relationships built through engagement activities was less well achieved.

It is evident that impact was treated as an important part of the Programme, and was considered to be embedded within its objectives. There were many examples of non-academic impact found during the evaluation in the areas of government policy, professional practice and business, and case studies were produced on the ECHOES, hapTEL and Synergynet projects. Impacts from these projects included ECHOES contributing to changing practitioner attitudes towards educational technology; Synergynet working with a furniture manufacturer to make tables for classrooms; and hapTEL developing dental technology for the commercial market. Activities which effectively engaged or involved external audiences in the research were seen as enablers to impact, and the ECHOES project was highlighted as an example of a good partnership model for user involvement. The impact evaluator noted some projects would have benefitted from earlier engagement with stakeholders – particularly commercial ones (hapTEL was noted as particular a success in this regard). The Programme did make efforts to support commercialisation, but this was highlighted as an area where more could have been achieved.

Capacity building

The evaluation evidence shows that TEL was strong in the field of capacity building, especially for early career researchers. Capacity building was one of the Programme's original research strands, and this was elevated a theme in the Programme's second year. There was a large amount of activity designed to support and develop capacity, and in particular the termly workshops had a strong focus on capacity building and early career researchers (ECRs). A legacy version of the website is planned to continue for two years after the end of the Programme, and a research group exists to maintain communications between individuals.

The Programme also aimed to build capacity in interdisciplinary working, with the interdisciplinary strand taking as one of its foci the difficulties encountered by early-career researchers in the TEL field.

Conclusions and lessons

The evaluation evidence suggests that the Programme successfully achieved each of its specific objectives and by doing so has made a sizeable contribution to the field of technology enhanced learning. The evidence also suggests that knowledge about the Programme and its projects has been made accessible and usable to policy and practitioner communities both nationally and internationally. Lessons that can be taken from this evaluation are:

Involve stakeholders earlier to achieve better non-academic impact

Activities which engaged or involved external audiences in the research were seen as enablers to impact by the research participants. In line with other ESRC evaluation

findings, the impact evaluator's work indicated that those projects which had built relationships earlier tended to have more effective impact, and that some projects would have benefitted from earlier engagement with stakeholders – particularly commercial ones, where some opportunity was missed or never fully explored. Continuing relationships forged through engagement activity are a key to ongoing non-academic impact.

Embed impact as a research objective

The TEL Director noted that it had become clear during the course of the Programme that better research is produced if impact is taken as a research objective, and it is evident that this was the case for the TEL Programme. If the Programme's very successful impact and engagement activity is based on this premise, it is clear that others could also learn from this approach. The Programme understood its audiences and developed materials and events to effectively engage them. This led to a wide variety of non-academic impact.

Better support the different fields of research in jointly funded projects

Although the Director made efforts to readdress the imbalance between the education and pedagogy fields and the computer science and technology fields, perhaps more could have been done by both funders to assist with this. Funder involvement in the monitoring process does vary across collaborative initiatives, but the ESRC should try to facilitate greater engagement with funding partners where possible to ensure that the interests of each respective research community is fully represented. To help initiatives like TEL to work better, the Director suggested that if possible case officers could be more involved with programmes during their life-course rather than through the formal troika mechanism.

Encourage activity to support and develop researchers

As well as delivering a programme of support, particularly to early career researchers, the 12 termly workshops helped create a community of TEL researchers and encouraged inter-project and interdisciplinary collaboration even where this was not the main aim of the workshop. TEL also produced varied resources and methods to support researchers, especially ECRs. TEL has a legacy version of its website for two years, and an ongoing research group for continuing communications after the Programme ends. These efforts contribute to maintaining a research community for the technology enhanced learning field after the Programme itself has ended. This is beneficial to the individuals, the Programme itself, the research field, and academia in general, and contributes to ESRC's strategic aim of supporting early career researchers.

Think about the most appropriate format for future research

While the evaluation evidence does suggest various topic areas for future research, it was also clear that a key area for future work should be implementation and the development of practical applications of research. It was also suggested that different formats – such as joint funding approaches involving key players such as commercial partners from the outset, focused centres for more focused impacts, or increasing the number of smaller grants in order to spread its reach – may lead to greater success in this area for future projects.